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George L. Snyder, Jr.

Name

Signature

May 16, 2008

Date of Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/536,567  
Applicant(s) : Ulrich Sander  
Filed : May 26, 2005  
Title : Device For Optically Viewing A Stereoscopic Observation Beam Path  
TC/A.U. : 2872  
Examiner : Mark J. Consilvio  
Docket No. : 33997.0115

**AMENDED APPEAL BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Amended Appeal Brief follows a "Notification of Non-Compliant Appeal Brief" mailed April 21, 2008.

The Director is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account Number 08-2442.

#### I. REAL PARTY IN INTEREST

The real party in interest is Leica Microsystems (Schweiz) AG, assignee of the present application. An assignment document from the inventor to Leica Microsystems (Schweiz) AG is recorded in the USPTO at Reel 016152 / Frame 0202.

#### II. RELATED APPEALS AND INTERFERENCES

There are no other related appeals or interferences.

#### III. STATUS OF CLAIMS

The application as filed included claims 1-13; claims 14-29 were added after original filing.

Claims 1-13 are canceled.

Claims 14-29 are rejected and are being appealed.

#### IV. STATUS OF AMENDMENTS

A Final Office Action was mailed October 25, 2007. No amendments have been submitted after mailing of the Final Office Action.

#### V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 14 is the only independent claim on appeal. Claim 14 is directed to an apparatus.

The apparatus of Claim 14 comprises “a main microscope (1) having an optical axis (4), a pair of main stereoscopic observation beam paths (4a, 4b) passing through the main objective (2), and a zoom (6) in the main observation beam paths (4a, 4b), the zoom having an axis arranged at an angle to the optical axis (4) of the main objective (2),” as described at page 5, lines 9-21, and shown in FIG. 1.

The claimed apparatus further comprises “an assistant’s microscope (8),” described on page 5, lines 10-11, and shown in FIG. 1. Further components of the microscopes, such as binocular eye tubes and eyepieces, are not shown in the drawings in the interest of simplicity. *See* page 5, lines 22-24.

Claim 14 also requires “a beam splitter (7) arranged in the main observation beam paths (4a, 4b) between the main objective (2) and the zoom (6) for reflecting out a pair of assistant’s stereoscopic observation beam paths (9a, 9b) to the assistant’s microscope” as described at page 5, lines 25-30.

A further limitation of Claim 14 is “wherein the beam splitter (7) is continuously rotatable, together with the assistant’s microscope (8), relative to main microscope (1) about the optical axis (4) of the main objective (2), whereby the beam splitter (7) and assistant’s microscope (8) are optically usable in any rotational position.” This arrangement is described as rotating through angle  $\gamma$  about the optical axis (4) at page 6, lines 13-18 and depicted in FIG. 2.

For each independent claim involved in the appeal and for each dependent claim argued separately under the provisions of 37 CFR 41.37(c)(1)(vii), it is asserted that there are no means-plus-function or step-plus-function limitations as permitted by 35 U.S.C. 112, sixth paragraph. Accordingly, no reference to any corresponding structure, material, or acts described in the specification is made herein.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There is one ground of rejection to be reviewed on appeal:

- 1) Claims 14-29 are rejected under 35 USC 103(a) as being unpatentable over US 2001/0010592 (Nakamura) in view of US 5898518 (Biber).

## VII. ARGUMENT

### *1. Rejection of claims 14-29 under 35 U.S.C. § 103(a) as being unpatentable over Nakamura in view of Biber*

#### *A. Claims 14-22, 24-27 and 29*

With respect to the stated rejection, claims 14-22, 24-27, and 29 stand or fall together.

Page 3 of the Final Office Action states the Nakamura reference fails to describe the beam splitter arranged between the main objective and the zoom and Applicant agrees. The Office Action relies on Biber to conclude that it would have been obvious to a person of ordinary

skill in the art to arrange the beam splitter of Nakamura between the main objective and zoom system for (i) the advantages taught in col. 1, lines 51-65 of Biber reference or (ii) to reduce the number of parts (multiple objectives) as would be understood by one of ordinary skill. Applicant respectfully disagrees.

Col. 1, lines 51-65 of the Biber reference describes an arrangement to allow either a main observer or a co-observer to optimize illumination characteristics by providing an illuminating unit that rotates relative to the main observer and the co-observer, so that either the main observer or the co-observer may control the illuminating unit without having to change their viewing positions. In Nakamura, the illumination system 13 is housed in main microscope body 2 and receives light from optical fiber 14. Therefore, repositioning beam splitter B1 of Nakamura to a location between objective 21 and zoom 22 would do nothing at all for achieving the purported advantage described at Col. 1, lines 51-65. The motivating advantage stated in the Office Action would not be furthered by the suggested modification.

As to reducing parts, Nakamura specifically and repeatedly teaches away from having a shared objective for the main observer and co-observer. Nakamura teaches that it is desirable to have a separate objectives for the main observer and co-observer to enable independent magnification adjustment so that different surgical procedures may be performed simultaneously by the main observer and the co-observer:

The assistant microscope has optical systems that are independent of those of the stereomicroscope, and therefore, the magnification of the assistant microscope is adjustable separately from the stereomicroscope. This makes combination surgery easier. For example, a main doctor may use the stereomicroscope to operate on a deep part of a target while an assistant doctor uses the assistant microscope to operate on a shallow part of the target.

Nakamura at paragraph [0015]; *see also* Nakamura at paragraphs [0029] and [0046]. Therefore, the prior art itself, which one skilled in the art at the time of the invention would refer to for teaching, states that it is an advantage, not a disadvantage, to have independent objectives.

Another aspect of Nakamura runs counter to modifying the location of beam splitter B1 as suggested in the Office Action. In particular, Nakamura is built for easy detachment of the assistant's microscope 7, whereby a main observer is given a wide view with the naked eye around the target (object). Paragraph [0046] states:

The assistant microscope of any one of the first and second embodiments is easy to detach when not needed, and the stereomicroscope without the assistant microscope is operable by itself to observe a target. If the assistant microscope is removed, an observer on the stereomicroscope may secure a wide view around the stereomicroscope when seeing a target with the naked eye.

This aspect is also mentioned at paragraph [0030] of Nakamura, and is a direct consequence of placing the beam splitter B1 in front of main objective 21 (between the main objective 21 and the object T). If one were to relocate beam splitter B1 as suggested in the Office Action, easy removal of the assistant's microscope would become a much more challenging design feature because the assistant's microscope 7 would no longer be at the bottom of the main microscope body 2, and a net gain in space between the object and the main microscope body upon removal of the assistant's microscope would be forfeited.

In light of the above comments, applicant respectfully contends that one of ordinary skill in the art at the time the invention was made would not have combined the teachings of Nakamura and Biber in the manner proposed by the Examiner.

The prior art references when combined must teach or suggest all the claim limitations. MPEP 706.02(j). Here, the references fail to teach or suggest the beam splitter arranged between the main objective and the zoom. It is improper to combine references where the references teach away from their combination, and the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. *See* MPEP 2145. In this respect, by following the suggestions on page 3 of the Office Action, the assistant's microscope of Nakamura would not be easily detachable, nor would it have an independent objective system, both important features of the primary reference.

For the foregoing reasons, the obviousness rejection of claim 14 and its dependent claims should be reversed.

*B. Claim 23*

With respect to the stated rejection, claim 23 stands or falls on its own. The arguments set forth above regarding parent claim 14 and intervening claim 19 are reiterated here for dependent claim 23.

With specific regard to claim 23, the Office Action states “Nakamura discloses deflection element (27) is rotatable relative to the beam splitter (B1) to vary a tilt angle between the assistant’s microscope axis (K4) and the direction of the pair of assistant’s stereoscopic observation beam paths after redirection by the deflection element (27) (fig.5).” Office Action at page 4. However, according to Nakamura, light flux K4 does not pass through beam splitter B1 as required by base claim 14. Light flux K4 results from the use of mirror M3—beam splitter B1 may not be present. *See* Nakamura figure 5.

Thus, the rejection of claim 23 is not supported and reversal of the rejection is respectfully requested.

*C. Claim 28*

With respect to the stated rejection, claim 28 stands or falls on its own. The arguments set forth above regarding parent claim 14 and intervening claims 26-27 are reiterated here for dependent claim 28.

With specific regard to claim 28, the Final Office Action states that “the combination of Nakamura and Biber suggests a first part (L2) of the main objective is used for the main observation beam paths of the main microscope, and a second part (M1) of the main objective is used for the illumination beam path, . . . .” *See* Office Action at page 5. Applicant strongly disagrees with the characterization of mirror M1 as being an objective lens part. This runs contrary to well-known understanding of the term “objective,” which is a lens.

At page 6, the Final Office Action contains a response to some of the above arguments. The Office Action seems to suggest that there is motivation to move the beam splitter and use a common objective in Nakamura, as suggested by Biber, in order to optimize illumination for both observation paths (“Nakamura fails to teach that the illumination is optimized for both observation beam paths” - Final Office Action p. 6). However, this deficiency of Nakamura would be directly solved by one skilled in the art by de-coupling

illumination system 13 of Nakamura from main stereomicroscope 1 of Nakamura, which is suggested by Biber which teaches an independent illumination unit (2, 32, 42). One skilled in the art would not move the beam splitter and use a common shared objective, as this would not by itself solve the illumination problem, but would eliminate the advantages of separate objectives touted by Nakamura.

Applicant respectfully requests that the rejection of claim 28 be reversed.

## VIII. CLAIMS APPENDIX

14. An apparatus comprising:

a main microscope (1) including a main objective (2) having an optical axis (4), a pair of main stereoscopic observation beam paths (4a, 4b) passing through the main objective (2), and a zoom (6) in the main observation beam paths (4a, 4b), the zoom having an axis arranged at an angle to the optical axis (4) of the main objective (2);

an assistant's microscope (8); and

a beam splitter (7) arranged in the main observation beam paths (4a, 4b) between the main objective (2) and the zoom (6) for reflecting out a pair of assistant's stereoscopic observation beam paths (9a, 9b) to the assistant's microscope;

wherein the beam splitter (7) is continuously rotatable, together with the assistant's microscope (8), relative to main microscope (1) about the optical axis (4) of the main objective (2), whereby the beam splitter (7) and assistant's microscope (8) are optically usable in any rotational position.

15. The apparatus according to Claim 14, wherein the zoom (6) includes an optical system in each of the pair of main stereoscopic observation beam paths.
16. The apparatus according to Claim 14, wherein the axis of the zoom (6) extends substantially perpendicular to the optical axis (4) of the main objective (2).
17. The apparatus according to Claim 14, wherein the assistant's microscope (8) is mechanically detachable from the main microscope (1).
18. The apparatus according to Claim 17, wherein the beam splitter (7) is mechanically detachable from the main microscope (1) together with the assistant's microscope (8).



19. The apparatus according to Claim 14, wherein the assistant's microscope (8) includes a deflection element (10) for receiving the pair of assistant's stereoscopic observation beam paths (9a, 9b) along an assistant's microscope axis (14) and redirecting the pair of assistant's stereoscopic observation beam paths (9a, 9b) into an assistant's binocular tube.
20. The apparatus according to Claim 19, wherein the assistant's microscope (8) further includes optical components in the assistant's microscope axis (14) between the beam splitter and the deflection element (10), the optical components enabling a spacing variation (15) and/or providing an image rotation between the beam splitter (7) and the deflection element (10).
21. The apparatus according to Claim 19, wherein the deflection element (10) is rotatable relative to the beam splitter (7) about the assistant's microscope axis (14).
22. The apparatus according to Claim 14, wherein the rotation of the beam splitter (7) together with the assistant's microscope (8) is drivable in motorized or manual fashion.
23. The apparatus according to Claim 19, wherein the deflection element (10) is rotatable relative to the beam splitter (7) to vary a tilt angle ( $\alpha$ ) between the assistant's microscope axis (14) and the direction of the pair of assistant's stereoscopic observation beam paths (9a, 9b) after redirection by the deflection element (10).
24. The apparatus according Claim 14, wherein the main objective (2) has a fixed focal length.
25. The apparatus according Claim 14, wherein the main objective (2) has a variable focal length.
26. The apparatus according to Claim 14, wherein the main microscope (1) further comprises an illumination beam path (12a) directed through the main objective (2).

27. The apparatus according to Claim 26, wherein the main objective (2) is divided into at least two parts.
28. The apparatus according to Claim 27, wherein a first part of the main objective (2) is used for the main observation beam paths (4a, b) of the main microscope (1), and a second part of the main objective (2) is used for the illumination beam path (12a), the second part being spaced from the first part and arranged at an angle to the optical axis (4).
29. The apparatus according to Claim 26, wherein the main objective (2) is rotatable, together with the illumination beam path (12a), about the optical axis (4) of the main objective (2).

## IX. EVIDENCE APPENDIX

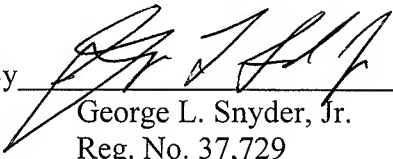
There is no appended evidence.

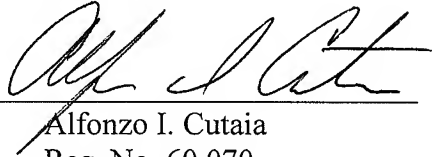
#### X. RELATED PROCEEDINGS APPENDIX

There are no other related proceedings.

Respectfully submitted,

HODGSON RUSS LLP

By   
George L. Snyder, Jr.  
Reg. No. 37,729

By   
Alfonzo I. Cutaia  
Reg. No. 60,070

GLS/

The Guaranty Building  
140 Pearl Street, Suite 100  
Buffalo, New York 14202-4040  
(716) 856-4000  
DATED: May 16, 2008